

CLAIMS

What is claimed is:

1. 1. An auxiliary valve positioned in an intake passageway of a four-cycle internal combustion engine for controlling the flow of air/fuel mixture into a combustion chamber, comprising:
  4. a through passage, said through passage defined by a top wall, a bottom wall, and opposing side walls;
  6. a swingable door openable and closable in relation to said through passage; and
  7. a spring loaded assembly biasing said swingable door closed.
1. 2. An auxiliary valve according to claim 1, further comprising an attachment bracket secured to said top wall, said attachment bracket serving to secure the auxiliary valve inside the intake passageway.
1. 3. An auxiliary valve according to claim 1, further comprising a bracket secured to said bottom wall, said bracket having a lip configured to catch said swingable door in the closed position, and retard the opening of said swingable door.
1. 4. An auxiliary valve according to claim 3, wherein said lip is curved to guide said swingable door into the closed position.
1. 5. An auxiliary valve according to claim 1, wherein said spring loaded assembly includes a boss and a latching member partially disposed within said boss, said latching member capable of movement in association with the opening and closing of said swingable door.
1. 6. An auxiliary valve according to claim 5, wherein said latching member extends through a door aperture in said swingable door, and interaction between said latching member and said door aperture allows said swingable door to open and close.
1. 7. An auxiliary valve according to claim 6, further comprising a plug attached to said latching member, wherein said plug is slidably supported by said boss, and said plug and said latching member are biased to close said swingable door.

- 1        8. An auxiliary valve according to claim 7, wherein said boss is located inside said  
2        through passage on said top wall, and includes a first aperture, a second aperture, a  
3        divider positioned between said first aperture and said second aperture, and a  
4        bushing-like hole in said divider, said latching member moving within said first  
5        aperture, said second aperture, and said bushing-like hole.
- 1        9. An auxiliary valve according to claim 8, further comprising a spring positioned  
2        around said latching member, and extending from said divider to interface with said  
3        plug, said spring biasing said plug away from said divider.
- 1        10. An auxiliary valve according to claim 9, wherein said swingable door has a rounded  
2        upper edge surface allowing said swingable door to pivot.
- 1        11. An auxiliary valve according to claim 10, wherein said latching member is hook  
2        shaped, and includes a horizontal portion, a vertical portion, and a curved portion  
3        extending between said horizontal portion and said vertical portion, said curved  
4        portion interacting with said door aperture according to the bias of said spring and  
5        the cycles of operation of said four-cycle internal combustion engine.
- 1        12. An auxiliary valve according to claim 11, wherein, when said four-cycle internal  
2        combustion engine is operating at low speeds, the bias of said spring is overcome  
3        and said swingable door opens after the intake stroke begins.
- 1        13. An auxiliary valve according to claim 11, wherein, when said four-cycle internal  
2        combustion engine is operating at low speeds, the bias of said spring closes said  
3        swingable door after the intake stroke ends.